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Indian Standard

SPECIFICATION FOR STOCK ANCHORS

(*First Revision*)

UDC 629·12·015·64

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Indian Standard

SPECIFICATION FOR STOCK ANCHORS

(First Revision)

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Indian Standard

SPECIFICATION FOR STOCK ANCHORS

(First Revision)

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 January 1981, after the draft finalized by the Shipbuilding Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 An anchor is designated by its nominal mass. The dimensions of the anchor and its component parts depend upon the nominal mass and the design features of the anchor.

0.3 This standard was first published in 1966. The need for the revision of this standard was felt regarding the range of nominal mass.

0.4 In the formulation of this standard due weightage has been given to international coordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by basing the standard on the following publications:

JIS F 3301 : 1975 Anchors, Japanese Industrial Standards Committee

PN W 83051 : 1961 Admiralty anchor. Polish Standards Committee

0.5 This standard is one of a series of Indian Standards on anchors. Other standards in the series are:

IS : 3267-1981 General requirements for anchors (*first revision*)

IS : 3268-1981 Specification for stockless anchors (for ships' use) (*first revision*)

IS : 3270-1966 Specification for stock and single fluke stock anchors (for harbour use)

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with

IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies the nominal mass (ranging from 25 to 2 160 kg), dimensions and materials for the various components of stock anchors.

2. TERMINOLOGY

2.1 For the purpose of this standard the definitions given in IS : 3267-1981† shall apply.

3. DIMENSIONS AND MASS

3.1 Mass and dimensions for stock anchor and its components shall be as given in Tables 1 and 2. All the dimensions are based on the basic dimension $A = S = 24{\cdot}45 \sqrt[3]{G}$, where G is the nominal mass of stock anchor in kilograms.

3.1.1 The mass and dimensions for stock anchors and anchor shackles shall be as given in Table 1 read with Fig. 1.

3.1.2 The mass and dimensions for stock together with its locking arrangement shall be as given in Table 2 read with Fig. 2.

3.2 The dimensions of various parts of stock anchor shall not vary by more than 4 percent from the specified values. The variation of any dimension from the specified value shall not exceed 20 mm.

3.3 Machining tolerances shall conform to coarse series of IS : 2102-1969‡.

3.4 The mass of different components shall not vary by more than 5 percent from the specified value of the mass of these components, provided the total mass of anchor is not less than the nominal mass given in Tables 1 and 2.

4. MATERIAL FOR CONSTRUCTION

4.1 The material for the construction of stock anchor and its various components shall be as specified in IS : 3267-1981†.

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*Rules for rounding off numerical values (*revised*).

†General requirements for anchors (*first revision*).

‡Allowable deviation for dimensions without specified tolerances (*first revision*).

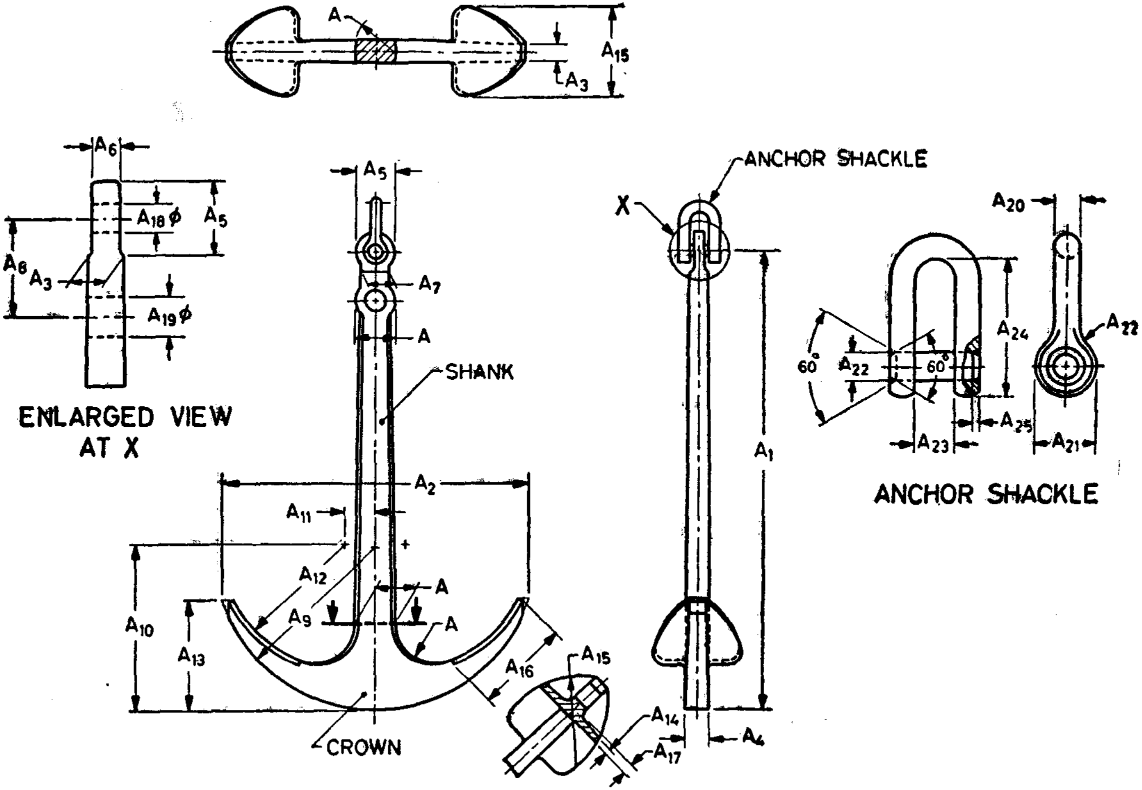

Fig. 1 Dimensions for Stock Anchors and Anchor Shackles

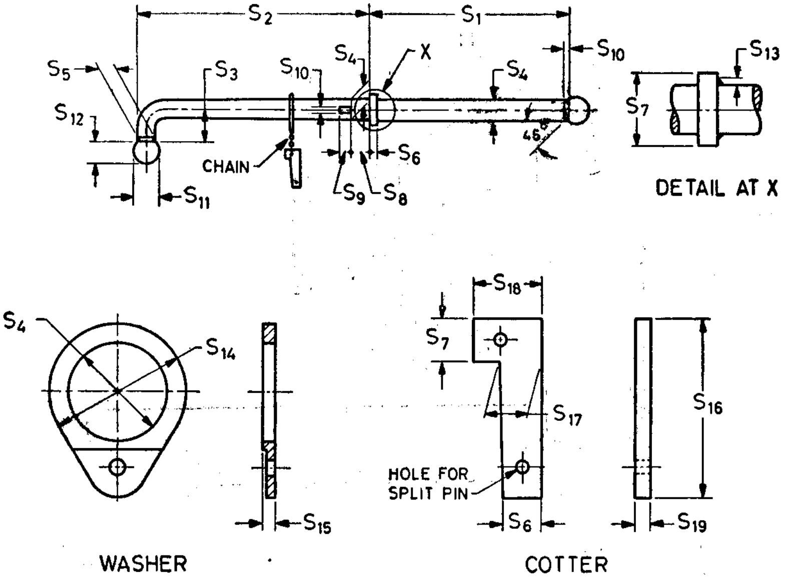

Fig. 2 Dimensions for Stock with Locking Arrangement

4.2 The material for washer and cotter shall be of forged steel Grade 2 conforming to IS : 3261-1966* or cast steel conforming to IS : 2985-1973†.

4.3 The chain and split pin shall be of mild steel and of suitable size in proportion to that of washer and cotter.

5. TESTS

5.1 Stock anchors shall be tested according to the tests prescribed in IS : 3267-1981‡.

6. DESIGNATION

6.1 The stock anchor shall be designated by its name, the nominal mass and number of this standard.

Example:

A stock anchor having a nominal mass of 1 500 kg shall be designated as:

Stock Anchor × 1 500 kg IS : 3269

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*Specification for carbon steel forgings for shipbuilding industry.

†Specification for steel castings for ship's structure (*first revision*).

‡General requirements for anchors (*first revision*).

7. MARKING

7.1 The stock anchors shall be marked as specified in IS: 3267-1981*.

7.1.1 The stock anchors may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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*General requirements for anchors (*first revision*).

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TABLE 1 MASS AND DIMENSIONS FOR STOCK ANCHORS AND ANCHOR SHACKLE

(*Clauses* 3.1, 3.1.1, 3.4, and *Fig.* 1)

All dimensions in millimetres.

NOMINAL MASS IN kg G	MASS OF SHANK, HEAD AND SHACKLE IN kg	BASE $A = 24\cdot45\sqrt[3]{G}$	A_1 (11·43A)	A_2 (7·63A)	A_3 (0·42A)	A_4 (0·60A)	A_5 (0·90A)	A_6 (0·33A)	A_7 (0·68A)	A_8 (1·20A)	A_9 (4·02A)	A_{10} (4·12A)	A_{11} (0·75A)	A_{12} (3·11A)	A_{13} (2·75A)	A_{14} (0·12A)	A_{15} (2·14A)	A_{16} (2·26A)	A_{17} (0·21A)	A_{18} (0·34A)	A_{19} (0·49A)	A_{20} (0·24A)	A_{21} (0·59A)	A_{22} (0·28A)	A_{23} (0·35A)	A_{24} (1·07A)	A_{25} (0·06A)
25	25	72	828	549	30	43	65	24	50	86	289	297	54	224	198	9	154	163	15	24	35	17	42	20	25	77	4
40	40	84	960	641	35	50	76	28	57	101	338	346	63	261	231	10	180	190	18	29	41	20	50	24	29	90	5
65	65	98	1 120	748	41	59	88	32	67	118	394	404	74	305	270	12	210	221	21	33	48	23	58	27	34	105	6
90	90	110	1 257	839	46	66	99	36	75	132	442	453	82	342	302	13	235	249	23	37	54	26	65	31	38	118	7
115	115	119	1 360	908	50	71	107	39	81	143	478	490	89	370	327	14	255	269	25	40	58	28	70	33	42	127	7
140	140	127	1 452	969	53	76	114	42	86	152	511	523	95	395	349	15	272	287	27	43	62	30	75	36	44	136	8
150	150	130	1 486	992	55	78	117	43	88	156	523	536	98	404	358	16	278	294	27	44	64	31	77	36	46	139	8
180	180	138	1 577	1 053	58	83	124	46	94	166	555	569	104	429	380	17	295	312	29	47	68	33	81	39	48	148	8
205	205	144	1 646	1 099	60	86	130	48	98	173	579	593	108	448	396	17	308	325	30	49	71	34	85	40	50	154	9
215	215	146	1 669	1 114	61	88	131	48	99	175	587	602	110	454	402	18	312	330	31	50	72	35	86	41	51	156	9
240	240	152	1 737	1 160	64	91	137	50	103	182	611	626	114	473	418	18	325	344	32	52	74	36	90	43	53	162	9
265	265	157	1 795	1 198	66	94	141	54	107	188	631	647	118	488	432	19	336	355	33	53	77	38	93	44	55	168	9
290	290	162	1 852	1 236	68	97	146	53	110	194	651	667	122	504	446	19	347	366	34	55	79	39	96	45	57	173	10
305	305	165	1 886	1 250	69	99	148	54	112	198	663	680	126	553	454	20	353	373	35	56	81	40	97	46	58	177	10
330	330	169	1 932	1 289	71	101	152	56	115	203	679	691	127	586	465	20	362	382	35	57	83	41	100	47	59	180	10
355	355	173	1 977	1 320	73	103	156	57	118	208	695	713	130	538	476	21	370	391	36	59	85	42	102	48	60	185	10
395	395	179	2 046	1 366	75	107	161	59	122	215	720	737	134	557	492	21	383	405	38	61	88	43	106	50	63	191	11
445	445	187	2 137	1 427	79	112	168	62	127	224	752	770	140	582	514	22	400	423	39	64	92	45	110	52	65	200	11
485	485	192	2 195	1 465	81	115	173	63	131	230	772	791	144	597	528	23	411	434	40	65	94	46	113	54	67	205	11
525	525	197	2 252	1 503	83	118	177	65	134	236	792	812	148	613	542	24	422	445	41	67	96	47	116	55	69	211	12
575	575	203	2 320	1 549	85	122	183	67	138	244	816	836	152	631	554	24	434	459	43	69	99	49	120	57	71	217	12
610	610	207	2 366	1 579	87	124	186	68	141	248	832	855	155	659	569	25	443	468	43	70	101	50	122	58	72	222	12
660	660	213	2 435	1 625	89	128	192	70	145	256	856	878	160	662	588	26	456	481	45	72	104	51	126	60	74	228	13
715	715	219	2 503	1 671	92	131	197	72	149	263	880	902	164	681	602	26	469	495	46	74	107	52	129	61	77	234	13
765	765	224	2 560	1 709	94	134	202	74	152	269	900	923	168	697	616	27	479	506	47	76	110	54	132	63	78	240	13
830	830	230	2 629	1 755	97	138	207	76	156	276	925	948	172	715	632	28	492	520	48	78	113	55	136	64	80	246	14
890	890	235	2 686	1 793	99	141	212	78	160	282	948	968	176	731	646	28	503	521	49	80	115	56	139	66	82	251	14
965	965	242	2 766	1 846	102	145	218	80	165	290	973	997	182	753	666	29	518	547	51	82	119	58	143	68	85	259	14
1 045	1 045	248	2 835	1 892	104	149	223	82	169	298	997	1 022	186	771	682	30	530	560	52	84	122	60	146	69	87	265	15
1 120	1 120	254	2 903	1 938	107	152	229	84	173	305	1 021	1 046	190	790	698	30	544	574	53	86	124	61	150	71	89	272	15
1 195	1 195	259	2 960	1 976	109	155	233	85	176	311	1 041	1 067	194	805	712	31	554	585	54	88	127	62	153	72	91	277	16
1 270	1 270	265	3 028	2 022	111	159	238	87	180	318	1 065	1 092	199	824	729	32	567	599	56	90	130	64	156	74	93	283	16
1 350	1 350	270	3 086	2 060	113	162	243	89	184	324	1 085	1 112	202	840	742	32	578	610	57	92	132	65	159	76	94	289	16
1 425	1 425	275	3 143	2 098	116	165	248	91	187	330	1 106	1 133	206	855	756	33	588	622	58	94	135	66	162	77	96	294	16
1 500	1 500	280	3 200	2 136	118	168	252	92	190	336	1 126	1 154	210	871	770	34	599	633	59	95	137	67	165	78	98	300	17
1 575	1 575	284	3 246	2 167	119	170	256	93	193	341	1 142	1 171	213	883	781	34	608	642	60	97	139	68	168	80	99	304	17
1 655	1 655	289	3 303	2 205	121	173	260	95	197	347	1 162	1 191	217	899	795	35	618	653	61	98	142	69	171	81	101	309	17
1 740	1 740	294	3 360	2 243	123	176	265	97	200	353	1 182	1 211	220	914	808	35	629	664	62	100	144	71	173	82	103	315	18
1 830	1 830	299	3 418	2 281	126	179	269	99	203	359	1 202	1 232	224	930	822	36	640	676	63	102	146	72	176	84	105	320	18
1 935	1 935	305	3 486	2 327	128	183	274	101	207	366	1 226	1 257	229	948	839	37	653	689	64	104	150	73	180	85	107	326	18
1 985	1 985	307	3 509	2 342	129	184	276	101	209	368	1 234	1 265	230	955	844	37	657	694	64	104	150	74	181	86	107	328	18
2 070	2 070	311	3 555	2 373	131	187	280	103	211	373	1 250	1 281	233	967	855	37	666	703	65	106	152	75	183	87	109	333	19
2 160	2 160	316	3 612	2 411	133	190	284	104	215	379	1 270	1 302	237	983	869	38	676	714	66	107	155	76	186	88	111	338	19

NOTE — For other nominal weights, with the given proportions, required dimensions may be calculated.

TABLE 2 MASS AND DIMENSIONS FOR STOCK WITH LOCKING ARRANGEMENT

(*Clauses* 3.1, 3.1.2, 3.4, and *Fig.* 2)

All dimensions in millimetres.

NOMINAL MASS IN kg	MASS OF STOCK IN kg	BASE $S = 24{\cdot}45\sqrt[3]{G}$	S_1 (4·90S)	S_2 (5·73S)	S_3 (0·80S)	S_4 (0·49S)	S_5 (0·39S)	S_6 (0·19S)	S_7 (0·70S)	S_8 (0·45S)	S_9 (0·23S)	S_{10} (0·09S)	S_{11} (0·61S)	S_{12} (0·55S)	S_{13} (0·04S)	S_{14} (0·67S)	S_{15} (0·06S)	S_{16} (0·88S)	S_{17} (0·21S)	S_{18} (0·34 S)	S_{19} (0·08S)
25	6	72	353	412	58	35	28	14	50	32	16	6	44	40	3	48	4	63	15	24	6
40	10	84	412	481	67	41	33	16	59	38	19	8	51	46	3	56	5	74	18	28	7
65	16	98	480	562	78	48	38	19	69	44	22	9	60	54	4	66	6	86	20	33	8
90	22	110	539	630	88	54	43	21	77	50	25	10	70	60	4	74	7	97	23	37	9
115	29	119	583	682	95	58	46	23	83	54	27	11	72	65	5	80	7	105	25	40	10
140	35	127	627	728	102	63	50	24	89	57	29	11	77	70	5	85	8	112	27	43	10
150	38	130	637	745	104	64	51	25	91	58	30	11	79	72	5	87	8	114	27	44	10
180	45	138	676	791	110	68	54	26	97	62	32	12	84	76	6	92	8	121	29	47	11
205	51	144	706	825	115	70	56	27	101	65	33	12	88	79	6	96	9	127	30	49	12
215	54	146	715	836	117	72	57	28	102	66	34	13	89	80	6	98	9	128	31	50	12
245	61	152	745	871	122	74	59	29	106	68	35	13	93	84	6	102	9	134	32	52	12
265	66	157	769	900	126	77	61	30	110	71	36	14	96	86	6	105	9	138	33	53	12
290	72	162	794	928	130	79	63	31	113	73	37	14	99	89	6	108	10	143	34	55	13
305	76	165	809	945	132	81	64	31	116	74	38	15	101	91	7	110	10	145	35	56	13
330	82	169	828	968	135	83	66	32	118	76	39	15	103	93	7	113	10	149	35	57	14
355	89	173	848	991	138	85	67	33	121	78	40	16	106	95	7	116	10	152	36	58	14
395		179	877	1 026	143	88	70	34	125	80	41	16	109	98	7	120	11	158	38	61	14
445	111	187	916	1 072	150	92	73	36	131	84	43	17	114	103	7	125	11	164	39	64	15
485	121	192	941	1 100	154	94	75	36	134	86	44	17	117	106	8	129	12	169	40	65	15
525	131	197	965	1 129	158	96	77	37	138	89	45	18	120	108	8	132	12	173	41	67	16
575	144	203	995	1 163	162	100	79	38	142	91	47	18	124	112	8	136	12	179	43	69	16
610	152	207	1 014	1 186	166	101	81	39	145	93	48	19	126	114	8	139	12	182	43	70	16
660	165	213	1 044	1 220	170	104	83	40	149	96	49	19	130	117	8	143	13	187	45	72	17
715	179	219	1 073	1 225	175	107	85	42	153	96	50	20	134	120	9	147	13	193	46	74	18
765	191	224	1 098	1 283	179	110	87	42	157	101	52	20	137	123	9	150	13	197	47	76	18
830	208	230	1 127	1 318	184	113	90	44	161	104	53	21	140	126	9	154	14	202	48	78	18
890	222	235	1 152	1 347	188	115	92	45	164	106	54	21	143	129	9	157	14	207	49	80	19
965	241	242	1 186	1 387	194	119	94	46	169	109	56	22	148	133	10	162	14	213	51	82	19
1 045	261	248	1 215	1 421	198	122	97	47	174	112	57	22	151	136	10	166	15	218	52	84	20
1 120	280	254	1 245	1 455	203	124	99	48	178	114	58	23	155	140	10	170	15	224	53	86	20
1 195	299	259	1 269	1 484	207	127	101	49	181	116	60	23	158	142	10	174	16	228	54	88	21
1 270	318	265	1 298	1 518	212	130	103	50	186	119	61	24	162	146	11	178	16	233	56	90	21
1 350	338	270	1 323	1 547	216	132	105	51	189	122	62	24	165	148	11	181	16	238	57	92	22
1 425	356	275	1 348	1 576	220	135	107	52	192	124	63	25	168	151	11	184	16	242	58	94	22
1 500	375	280	1 372	1 604	224	137	109	53	196	126	64	25	171	154	11	188	17	246	59	95	22
1 575	394	284	1 392	1 627	227	139	111	54	199	128	65	26	173	156	11	190	17	250	60	96	23
1 655	414	289	1 416	1 656	231	142	113	55	202	130	66	26	176	159	12	194	17	254	61	98	23
1 740	435	294	1 441	1 685	235	144	115	56	206	132	68	26	179	162	12	197	17	259	62	100	24
1 830	458	299	1 465	1 713	239	146	117	57	209	134	69	27	182	164	12	200	18	263	63	102	24
1 935	484	305	1 494	1 748	244	149	119	58	214	137	70	27	186	168	12	204	18	268	64	104	24
1 985	496	307	1 504	1 759	246	150	120	58	215	138	71	28	187	169	12	206	18	270	64	104	24
2 070	518	311	1 524	1 782	249	152	121	59	218	140	72	28	190	171	12	208	19	274	65	106	25
2 160	540	316	1 548	1 811	253	155	123	60	221	142	73	28	193	174	13	212	19	278	66	107	25

NOTE — For other nominal weights, with the given proportions, required dimensions may be calculated.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	$1\ \mathrm{N} = 1\ \mathrm{kg.m/s^2}$
Energy	joule	J	$1\ \mathrm{J} = 1\ \mathrm{N.m}$
Power	watt	W	$1\ \mathrm{W} = 1\ \mathrm{J/s}$
Flux	weber	Wb	$1\ \mathrm{Wb} = 1\ \mathrm{V.s}$
Flux density	tesla	T	$1\ \mathrm{T} = 1\ \mathrm{Wb/m^2}$
Frequency	hertz	Hz	$1\ \mathrm{Hz} = 1\ \mathrm{c/s}\ (\mathrm{s^{-1}})$
Electric conductance	siemens	S	$1\ \mathrm{S} = 1\ \mathrm{A/V}$
Electromotive force	volt	V	$1\ \mathrm{V} = 1\ \mathrm{W/A}$
Pressure, stress	pascal	Pa	$1\ \mathrm{Pa} = 1\ \mathrm{N/m^2}$

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